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Making Risky Environments Safer

Women building sustainable and disaster-resilient communities

We tend to discuss sustainable development and disaster reduction as two separate "components". However, fundamentally, the aims of both are similar. Sustainable development is not reachable and complete unless disaster reduction is an essential element in it, and disaster reduction is not something which can be discussed, removed from development. Gender as an issue is in-built and cuts across both. Therefore, in reaching gender equality, the methods of analysis and tools of application can be the same. (Madhavi Ariyabandu, Programme Manager, Disaster Mitigation, Duryog Nivaran, Sri Lanka, 2001)[1]

It is important to stress that gender equality in disaster reduction requires, above all, empowering women to have an increasing role in leadership, management and decision-making positions. (Sálvano Briceño, Director, International Strategy for Disaster Reduction, Geneva, 2001)[2]

Women's work and disaster risk management

Natural disasters—particularly erosion and other forms of soil degradation, pollution of freshwaters, shoreline erosion, flooding, loss of wetlands, drought and desertification—impact directly on women in their roles as providers of food, water and fuel. Climate change can also impact on women's productive roles since the physical impacts of global warming—rising sea levels, flooding in low-lying delta areas and increased saltwater intrusion—can jeopardize sustainable livelihood strategies. Food security and family well-being are threatened when the resource base on which women rely to carry out their critical roles and obtain supplementary incomes is under-mined. . . . Effective risk assessment and management require the active involvement of local communities and civil society groups to ensure decreased occurrence of disasters and reduced losses and costs when they do occur. The knowledge, contributions and potentials of both women and men need to be identified and utilized.

Source: Carolyn Hannan, Director, United Nations Division for the Advancement of Women. Statement at a round table panel and discussion organized by the Division for the Advancement of Women and the NGO Committee on the Status of Women, United Nations Headquarters, 17 January 2002 (*www.un.org/womenwatch/daw/documents/Natdisas*)

Introduction

We trap water by making sections of clay pipe; we then arrange these in line with the beds. We place one on top of the others, which we roll out to their outer ends. We then plant our vegetables on top of them. We get grass on other beds so that the water does not dry up. . . . We did not know how to conserve water but now we can conserve water. We do not know the crops which were suitable for our type of soil. Now we know them. That's how we can find ways to survive. Now we can go to other places and come back with different technology and those other people will also learn something from us—we will be sharing like that. (Pastoralist Disaster Committee, Zimbabwe)[3]

Drought is a fact of life in Zimbabwe and neighbouring States. The women whose hard work produces food for families are often ignored in agricultural training programmes. In contrast, the approach adopted by the Intermediate Technology Group in Chivi helped Fatima and other women farmers conserve water and cope with drought conditions. Most importantly, this approach was built around the central role of women as resource conservers and community leaders in natural hazard mitigation and disaster reduction.

This story of women taking the lead to build disaster-resilient communities contrasts vividly with the more familiar images of women as passive and needy victims flashed around the world in the aftermath of every major disaster. Rarely do disaster stories and photos fail to showcase male heroism and female vulnerability. Who can forget the desperate scenes from Mozambique of childbirth in the treetops above floodwaters? Dominant views of disaster remain framed by gender-biased perspectives which ignore or distort the complex realities of both women's and men's experiences in natural disasters. Seeing disasters "through the eyes of women" challenges the notion of peo-

ple in hazardous environments as disaster victims and girls and women as "special populations" in special need of emergency relief. It balances analysis of women's constraints and vulnerabilities in disaster contexts with a better understanding of their capacities and resources as environmental and social change agents.

Living in risky environments

Large-scale natural disasters captured the headlines in the first years of the twenty-first century: a massive earthquake in India, widespread flooding and an urban flash flood in Bolivia, another unexpected volcanic eruption, persistent drought in some of the world's poorest lands, a major earthquake compounding misery in northern Afghanistan. Less visible in the public imagination were the recurring and localized landslides, floods and fierce storms that also take a huge toll over the long run. Called "small-scale" disasters by outsiders, these events carry social costs that are as high or higher than catastrophic events emphasized by the media.

Increasing risks and the rising toll of disasters

Despite the development of new information and communication systems, technological advances, increased technical expertise, and sophisticated emergency relief systems, most of the world's people are still at great risk of harm due to natural disasters. But the risk of natural disaster such as poverty, pollution or epidemics is not equally distributed among people or regions.[4] Consider, for example, that:

- During the 1990s, approximately 211 million persons were affected or killed by natural disasters, seven times as many as those hurt or killed in armed conflict;
- As many as 100,000 people die each year due to natural disasters;
- Though there has been some success in reducing the toll of major environmental disasters, natural disasters kill an average of 1,300 people every week;
- The vast majority of disaster deaths occur in developing countries;
- In most disasters, where sex-specific data are available, more women than men lose their lives;
- Quantifiable economic costs may exceed $300 billion a year by 2050; and
- Extensive economic losses sustained in developed nations between 1985 and 1999 reached 2.5 per cent of GDP while the world's poorest countries collectively lost 13.4 per cent of GDP.

Slow or sudden (drought versus cyclone), small-scale or catastrophic (small landslide versus major earthquake), disasters take a huge toll on people and places. Natural disasters can create new opportunities, and some groups may prosper economically, but disasters first and foremost damage and destroy lives, livelihoods, infrastructure and environments. Many survivors take disasters in stride, just as they do the challenges of poverty or widowhood, but they may also experience lingering effects on their health, security, psychological well-being, sense of place and cultural identity.

The vocabulary of risk and vulnerability

Familiar ecosystems may well have developed through repeated exposure to the very forest fires or floods that people may experience as disasters. Certainly, "not every natural disturbance is a disaster, and not every disaster is completely natural".[5] Disasters arise squarely within the human experience. Across the globe, it is human action that creates the conditions for transforming naturally occurring events such as earthquakes or volcanic eruptions into human tragedies. Cultures and landscapes differ, so the "risk scape" of disaster is differently configured in every community.

To end the cycle of "disaster by design",[6] the complex impacts of global development on natural ecosystems and resources must be understood. This understanding must inform efforts to change the "normal" state of affairs through which extreme environmental conditions or events become human disasters in order to intervene in the disaster-development-disaster cycle.

The term disaster is understood very differently by those who use it. In some parts of the world, there is no one word for "disaster" but many words for what makes life "dangerous" or "risky".[7] Risk is always relative: it is a function of people's relative exposure to physical or natural hazards (such as earthquakes) and people's social vulnerability to the effects of the hazard (people with strong houses are less vulnerable to earthquake). Risk is also a function of people's relative ability to reduce their own vulnerability to the hazard (for example, through public education in all community languages, using communication outlets appropriate for persons with disabilities, different ethnic and age groups, etc.), and to reduce the effects of hazards (for example, where hospitals are retrofitted or constructed to withstand seismic motion, people are at reduced risk).

By disaster, people may refer to genocide, epidemics, economic depressions, explosions and accidents, complex emergencies combining armed conflict and environmental stress—or simply the routine social conditions making everyday life a disaster. The following discussion focuses on environmental disasters.

Environmental or natural disasters can be meteorological, such as forest fires, windstorms, landslides, droughts or extreme temperature events. They can also be based on geophysical processes like earthquake and volcanic

eruption. While environmental or natural disasters are set into motion by naturally occurring environmental hazards, they are also social processes grounded in the social organization of people. The hazards people have always faced (meteorological or weather-related, or geophysical, involving earth movement) as well as new ones (for example, global warming, toxic contamination) are often accepted as inevitable aspects of everyday life.

Physical vulnerabilities may be structural in nature, such as housing built in flood plains or earthquake zones. Social vulnerabilities are based on differences and inequalities among people. These include physical differences (consider, for example, the mobility barriers of the very young and very old), but especially reflect differences in social power structures (for example, based on sex, race or ethnicity, social class or age). These inequalities put people in places, jobs, houses and situations, which either increase or reduce their ability to anticipate, prepare for, survive, cope with and recover from the effects of natural disasters.

It is important to note that vulnerability is not inherent in persons (for example, the disabled, women, the elderly), but follows from systems and structures of inequality, which convert differences to inequalities (for example, lack of attention in disaster contexts to the capacities or needs of people with disabilities, or constraints due to old age). Nor are vulnerable people helpless people, though women in particular are often seen only as needing "special" assistance. In other words, vulnerability to hazards is not given but created. "Vulnerability is consequent not on hazard but on particular social, economic and political processes. Disaster is an extreme situation which results from these processes."[1]

Mitigation of risky environmental conditions and events involves actions taken to reduce risk and make people more secure, for example, when deforested hillsides are terraced and rainwaters harvested in drought-prone areas. Some forms of structural mitigation, such as levees and dams, can reduce flooding but may have negative effects downstream or on people's cultural and economic survival. Building codes can be strengthened and land-use planning implemented to prevent development in areas exposed to the effects of hazards such as flood plains or known seismic zones.

Early warnings, evacuation centres and effective emergency relief and rehabilitation systems are other forms of mitigation as are preparedness measures at the household and neighbourhood levels. People make their lives and livelihoods more secure through mitigation but also by preparing against the eventuality of small fires becoming firestorms and storms becoming hurricanes. Practising emergency evacuation plans in homes and institutions, preparing and storing reserves of food and water, and educating children about the need to be prepared are only the most obvious examples. Mitigation and preparedness are not ad hoc activities before and after disaster occurrences but ongoing activities of daily life in communities constructed around ecologically sound use of resources, sustainable economic growth, human development and social justice.

Mitigation and preparedness need to be complemented by vulnerability reduction. The risk of disaster can be reduced by identifying hazards, taking precautions and preventing evident harm, but disasters cannot be prevented without identifying and addressing the root causes of people's socially constructed vulnerability to natural hazards. Despite significant advances in emergency preparedness and response in many parts of the world, people continue to be at very great risk of harm from the effects of natural disasters. Global development patterns carry some of the root causes of the very hazardous living conditions that shape the lives and futures of increasing numbers of people. Megacities and over-development of coastal areas, for example, are phenomena that put millions of people in risky living conditions. Development priorities which do not provide for sustainable use of natural resources or promote social development and the enjoyment of human

What is a natural disaster?

A natural disaster is the result of the impact of a natural hazard on a socio-economic system with a given level of vulnerability, which prevents the affected society from coping adequately with this impact. Natural hazards themselves do not necessarily lead to disasters. It is only their interaction with people and their environment that generates impacts, which may reach disastrous proportions.

A disaster is usually defined as a serious disruption of the functioning of society, causing widespread human, material or environmental losses which exceed the ability of the affected society to cope using only its own resources.

Source: International Strategy for Disaster Reduction, *Countering Disasters, Targeting Vulnerability* (Information Kit, 2001). The Centre for Research on the Epidemiology of Disasters also offers a glossary of core concepts (*www.cred.be/emdat/glossary.htm*).

While we cannot do away with natural hazards, we can eliminate those that we cause, minimize those we exacerbate and reduce our vulnerability to most. Doing this requires healthy and resilient communities and ecosystems. Viewed in this light, disaster mitigation is clearly part of a broader strategy of sustainable development—making communities and nations socially, economically and ecologically sustainable.

Source: Janet Abramovitz, "Averting unnatural disasters", *State of the World 2001* (New York, Worldwatch Institute, W. W. Norton, 2001), p. 137.

rights deprive millions of people of good health, income, secure housing, information, social networks and other resources vital to surviving a devastating cyclone or flood. The number of people in water-stressed countries, for example, is expected to rise from 1.7 billion to 5 billion by 2025. Growing reliance on highly integrated "lifeline" infrastructures of communication, power and transportation also increases vulnerability to the effects of disruption, whether from accidental failure, sabotage or an ice storm or earthquake.

Grounded both in mitigation and in vulnerability reduction, disaster resilience (the "bounce back" factor) exists at the individual, household, organizational and institutional levels. Risk-reducing approaches to disasters enhance people's disaster resilience, but no clear separation of resilience from vulnerability exists. People and places can be highly vulnerable in some respects (a wealthy family in a seaside mansion, for example) and highly resilient in other respects (the family will have savings, income and insurance to rebuild or relocate). Disaster-resilient communities are areas where people have identified local risks, taking into account all relevant hazards as well as social vulnerabilities to them, assessed local resources and capacities and organized steps to reduce these risks. Such efforts cannot be undertaken successfully without appreciating the differential impacts of disasters on girls and women, as compared to boys and men, or without the full use of the skills, knowledge and commitment of both women and men in building disaster-resilient societies.

Girls and women are affected directly and indirectly by disaster-causing trends and patterns, in ways that can be similar to those on men and boys, but also in substantially different ways. Too often, girls' and women's vulnerability is misunderstood as derivative (for example, women are disproportionately poor, hence disproportionately vulnerable to disaster) or subsumed under other categories (for example, illiteracy increases vulnerability, and women are disproportionately illiterate). In these instances, the critical aspect of gender relations and the persistent subordination of and discrimination against women, and the relevance of such inequalities for disaster prevention and mitigation, remain unexamined.

Development of capacities and resources—skills, knowledge and abilities, including sound environmental practices, strong community ties and proactive community organizations—which are needed in the face of hazards and disasters requires a gender-specific approach that explicitly addresses women's needs, priorities and constraints as well as those of men, to achieve optimum results. Women's groups and networks often play a critical role in developing such capacities.

New approaches to hazards and disasters

Disasters are still more likely to be seen as isolated occurrences rather than complex social processes. Taking this narrow view fosters an ad hoc, event-focused approach based on "managing"

What is the risk management approach to disasters?

Emergency management approach:

- **Focus on the emergency itself and actions carried out before and after;**
- **Objectives are to reduce losses, damage and disruption when disasters occur and to enable rapid recovery.**

Disaster risk management approach:

- **Focus is on the underlying conditions of risk, which lead to disaster occurrence;**
- **Objective is to increase capacity to manage and reduce risks, and thus the occurrence and magnitude of disasters.**

Source: S. Jeggilos, "Fundamentals of risk management", *Risk, Sustainable Development & Disasters: Southern Perspectives*, Ailsa Holloway, ed., (Cape Town, University of Cape Town, Periperi Publications, 1999), p. 9.

catastrophic events, generally through male-dominated "command and control" emergency management systems based on technological expertise and the easy assumption that outside help is needed for disaster "victims."

With growing recognition of the limited effectiveness of this approach, new avenues are being explored in developing and developed nations alike. In this new framework, disasters are viewed as a social process that unfolds in a particular political, economic, historical, social and cultural context. From this perspective, reducing the risk of disasters, rather than managing disastrous events, is the top priority. This begins with understanding risk factors in particular places and times.

Local knowledge is the first element for effective disaster reduction. Communities that are knowledgeable about mitigating local hazards and reducing their own social vulnerabilities and have an appreciation of indigenous and historical coping strategies as well as outside emergency preparedness and response resources are better able to prevent extreme environmental events from becoming human disasters. When the next flood occurs, as it surely will, people will rebuild in ways that reduce, not reinforce or recreate, their exposure to hazards—for example, by relocating homes or planting trees to restore denuded hills causing landslides.

Where disaster management approaches perpetuate a view that women have "special" needs that create additional difficulties for relief workers, women's subordination is reinforced. The alternative approach now emerging invites attention to gender relations, the priorities and needs of women as well as men, and the division of labour in households, communities and in the public sphere. This approach highlights women's critical roles as resource users and managers, and takes advantage of their role in social change and of their contribution throughout the disaster process or cycle. Recognizing that neither sustainable development nor disaster reduction can be realized without the empowerment of women, women and men are treated as full and equal partners in the hard work of building disaster-resilient communities.

Women at risk in disasters

Far from unmediated "natural" events arising from human settlement in an inherently uncertain environment, natural disasters are social processes precipitated by environmental events, but grounded in historical development patterns and social relations, of which gender relations are a core component. Though not uniformly or universally, women are often both uniquely vulnerable to the effects of degraded environments subject to natural hazards and uniquely positioned as "keys" to disaster prevention.

Gender roles put women in hazardous positions

Effective management of natural resources and effective policies to reduce risk or respond to nature disasters require a clear understanding of gender-based differences and inequalities. Lack of such understanding can lead to the perpetuation or reinforcement of such gender-based inequalities and other dimensions of social vulnerability in the provision of emergency relief and in long-term reconstruction processes.

Women tend to be over-represented in highly vulnerable social groups, whose ability to prepare for, survive and cope with disasters is severely limited. Such groups include rural populations that remain behind when men migrate to urban centres for work—the frail, elderly, refugees and displaced persons, single heads of poor households, and those living with chronic health problems. Gender-based inequalities and disadvantages are often compounded by factors such as race, class, ethnicity or age, which lead to great differences in women's experiences in disasters.

While gender roles vary culturally and historically, they often create risky living conditions for women both in "normal" and extreme periods. Women who are poor or economically insecure are less resilient to disasters. Earning an income and providing for their families puts women on the front lines of hazardous work on a daily basis. Other factors, such as elevated levels of malnutrition and chronic illness, low levels of schooling and literacy, lack of information and training, inadequate transportation, and cultural limitations on mobility, can also reduce women's resilience to disaster. Caring for others takes many women's lives when sudden choices must be made about self-preservation or rescue of children and others. Because their lives are so often confined to the home, girls and women are correspondingly more exposed than men to death and injury when buildings collapse. Lack of secure housing and land rights and relative lack of control over natural resources, risk of domestic and sexual violence, and barriers to full participation in decision-making affecting environmental management and public policy are other factors that can increase women's vulnerability to natural disasters, and reduce their ability to prepare for, survive and recover from devastating mudslides or fires robbing them of livelihood, health, security and community.

Degraded environments and their gender-specific impact

Not universally, but often, it is women's relationship to the natural world that most directly puts them at risk and motivates their efforts to make life safer and more secure.

Effects of environmental degradation on women

. . . The deterioration of natural resources displaces communities, especially women, from income-generating activities, while greatly adding to unremunerated work. In both urban and rural areas, environmental degradation results in negative effects on the health, well-being and quality of life of the population at large, especially girls and women of all ages. Particular attention and recognition should be given to the role and special situation of women living in rural areas and those working in the agricultural sector, . . . Environmental risks in the home and workplace may have a disproportionate impact on women's health because of women's different susceptibilities to the toxic effects of various chemicals. These risks to women's health are particularly high in urban areas, as well as in low-income areas where there is a high concentration of polluting industrial facilities.

Source: Beijing Platform for Action, para. 247.

Girls and women have significant opportunities as resource users and managers as well as environmental consumers, producers, educators and activists to impact on their natural environment. That impact may be no more benign than men's—and sometimes what women do makes natural disasters more likely. For instance, like landless men, women are less likely to adapt sustainable farming practices when they do not own their land. In many parts of the world, "women's food crops are relegated to rented, steeply sloped land with erosive soils. Because tenure is not secure, women have little incentive to invest in soil conservation"[9] which might, in turn, minimize erosion and landslides. Driven into refugee camps by disasters or armed conflict, or forced onto fragile lands by destitution, women can also make matters worse by overutilizing local resources to sustain life.

Degraded forests, polluted waters, eroded soils and other symptoms of environmental stress impact on girls' and women's time, educational opportunities, economic status, health and human rights in a way that is frequently gender-specific and based on societal expectations about the roles of women and men. Denuded forests, to choose one example, force women or girls to walk long distances to gather just enough fuel wood for one spare meal a day, preventing them from engaging in income-generating or educational activities. Overburdened and poorly nourished girls and women are correspondingly less able to resist the hunger, illness and despair that a catastrophic flood will bring.

The environmental impacts of women's work, their roles as family educators and the significance of their decisions as consumers have made sustainability a key issue for women and women's movements around the world. With respect to resource-dependent employment, women are on the front lines of environmental conservation and stewardship as their livelihoods and the health and well-being of their families and communities depend upon it.

As key environmental actors, women's priorities, values, abilities and activities increasingly shape the movement to prevent environmental disasters and toward environmental sustainability.

Natural disasters and their gender-specific impact

When women and men confront routine or catastrophic disasters, their responses tend to mirror their status, role and position in society. Accounts of disaster situations worldwide show that responsibilities follow traditional gender roles, with women's work carrying over from traditional tasks in the home and household, and men taking on leadership positions.

Gender-based inequalities can put women and girls at high risk and make them particularly vulnerable during natural disasters. There are many casualties among women in disasters, for example, if they do not receive timely warnings or other information about hazards and risks or if their mobility is restricted or otherwise affected due to cultural or social constraints. Field accounts repeatedly demonstrate how unwritten or unexamined policies and practices disadvantage girls and women in emergencies, for example, marginalizing them in food distribution systems, limiting their access to paid relief work programmes and excluding them from decision-making positions in relief and reconstruction efforts. Emergency relief workers' lack of awareness of gender-based inequalities can further perpetuate gender bias and put women at an increased disadvantage in access to relief measures and other opportunities and benefits.

The direct and indirect impact of disasters on women's lives and livelihoods extend to their aftermath. Gender-based attitudes and stereotypes can complicate and extend women's recovery, for example, if women do not seek or receive timely care for physical and mental trauma

Impacts of drought and earthquake on rural women in Gujarat, India

Because rural women's work is so highly resource-dependent, they suffer immediate unemployment and indirect loss from the ripple effects of degraded natural resources. Water resources are a case in point. Already undependable water sources were rendered useless in some cases by the earthquake, while elsewhere the quality of water deteriorated. As women are responsible for water gathering, more limited water supplies translates into less time for income-generating work. Lack of water also obviously reduces women's opportunities to earn money through waged labour on local farms. When alterations in hydrologic systems salinized water, women whose income depends on water may lose a reliable, if limited, source of income. Women salt farmers, who are 50 per cent of the migratory labour force to the Little Rann, are at risk of long-lasting economic stress under these conditions, which may force them out of villages and into informal work in cities. Women's local knowledge and historical perspective on natural resource-based employment is an essential asset to economic planners working at the community level. Their work as guardians, users and managers of scarce natural resources positions them as experts in the decisions to come about how to rebuild in ways that mitigate damage from future disasters. Across castes, classes and ages, women's "inside out" perspectives on environments, disasters and development must be brought to bear on the question of reconstructing Gujarat's economy.

Source: Elaine Enarson, "We want work". *Rural Women in the Gujarat drought and Earthquake.* Quick-Response Research Grant Report to the Natural Hazards Research and Information Center (*www.colorado.edu/hazards/qr/qr135/qr135.html*)

Women reducing risk and responding to disasters

Women increase food security

The fodder security system for the women of Banaskantha puts people at the centre of its strategy. It moves away from one-off relief measures and provides a long-term development solution to mitigating the effects of drought and to strengthening a community's capacity to prepare for the onset of the disaster. Women have the responsibility for fodder security and for maintaining the family during drought. They have benefited from the system in several ways. Fodder security has given them food security and increased their opportunities for earning income. Reduction in migration has reduced the pressure of their responsibilities as men begin to remain in the village throughout the dry season. At a more strategic level, women are participating in the public sphere alongside men in the decision-making relating to the scheme.

Source: Mihir Bhatt, "Maintaining families in drought India: the fodder security system of the Banaskantha women", in P. Fernando and V. Fernando, eds., South Asian Women Facing Disasters, Securing Life, p. 44.

Women mitigate environmental hazards

As providers and producers, women are often able to help make their households, neighbourhoods and communities less vulnerable to the effects of natural hazards and disasters. Strategies range from collaborative action to activism at the grass-roots level.

Women's collaborative action. Women's skills and knowledge about local conditions can form the basis for better prepared-ness for environmental stress. This is apparent in a northern district of Gujarat, India, where women organized a collective to ensure ample supplies of fodder to maintain their livestock during drought periods, thereby also securing continuous milk supplies for women and more secure household income.

Women's technological innovations can bring solutions to environmental problems. Women "char-dwellers" in Bangladesh increase food security by composting kitchen waste to produce soil-enriching fertilizer. They prepare for floods by securing fodder for their livestock, planting trees around the low houses they build with local materials with cross-supports against strong winds and selecting fast-growing seedlings to make char soils more stable. To preserve rainwater, they cool the pits they dig with cow dung.[1]

Since women earn their living from plants and materials, they have become active players in a multi-stakeholder forum researching sustainability problems. After studying local problems, the Jinga Urban Women's Wetlands Project in Uganda was launched to promote alternative income-generating strategies, including alternatives to farming techniques that had contributed to the loss of wetlands. Wetland preservation is a vital strategy for managing recurrent floods in the region.[1]

Women community workers and networkers often take the initiative to promote hazard mitigation at the local level. In the aftermath of a destructive bushfire in Australia, for example, mainly women responded when a local woman put out a call for fire prevention volunteers. The women then made regular personal visits at the start of the fire season to all families in the area, helping people clear brush around their homes and otherwise reduce their vulnerability to fire. Local authorities opposed the programme, which ran successfully for a number of years, and eventually appointed a male bushfire education and prevention officer. "Since his appointment, no pamphlets have been distributed, no one talks to remind or help people clear their land, and no one calls on the frail or elderly to work out evacuation plans."[1]

Women can be resource conservers to meet the needs of their families, animals and crops. The community-based Disaster Mitigation Institute (DMI) and the Self-Employed Women's Association (SEWA) (a labour union and social network for low-income women) were already well known in the regions hit hardest by the January 2001 earthquake in the state of Gujarat, India, which also suffered from years of severe drought. Water conservation was all the more important after the earthquake as seismic changes destroyed or damaged many wells, ponds and storage tanks and, in some places, rendered fresh water too salty for use. The work of SEWA and DMI with local women before the earthquake to promote rainwater harvesting through household containers and community wells and ponds was an invaluable resource in drought-stricken communities struggling to recover from this highly destructive earthquake.

In nearby Banaskantha, the United Nations Development Programme (UNDP) is working with local women's associations in 75 villages on projects aimed at "developing a sustainable approach to combat desertification through integrated water resource management and economic empowerment. About 40,000 women are involved in this programme and are taking action to combat desertification

through building and lining ponds, harvesting rain water and reviving traditional irrigation systems."[13]

The resourceful women farmers of Kathaka, Kenya, where soil erosion is a serious problem, are another example of resource conservation. Voluntary self-help groups consisting mainly of women from the same farm neighbourhood were organized into 12 different groups to build terraces, dams and drains, which help stabilize soils, and, thus, reduce the exposure of women farmers to erosion in storms and floods.[14]

Women are survivors with coping skills whose knowledge helps protect fragile environments and people at risk. As primary providers and caregivers, women historically have struggled to sustain life during wars, economic crises, epidemics, civil disturbance—and in the face of hazards and disasters. Their skills and knowledge are a major resource in hazard-prone communities subject to extreme weather events and environmental occurrences. Their labour in home gardens and small plots of land provides more nutritious food and increases local self-sufficiency, for example through seed banks and the preservation of indigenous species. Women may also diversify their income in this way as a hedge against the constant threat of extreme disaster losses. It follows that disaster recovery programmes should, though they often do not, "help to re-build [women's home gardens], with tools and seed distribution, irrigation systems, credit, seedling banks, and other resources in the same way that similar resources are provided for cash-crop production."[15]

During the drought in southern Africa during the early 1990s, Oxfam[16] helped increase food security and disaster resilience by working only with elected committees comprised equally of women and men. Soon known as "the Oxfam women", these elected representatives worked very effectively in small groups to distribute relief food and share labour, land and tools. "That's when we found out our development work with these women's groups had not just given them an opportunity to grow more food, but an opportunity to gain insight into their problems, to gain self-confidence, and to articulate that in public and really take on anybody. So these women were, if you like, the vanguard leaders of the moment."[17]

Women are grass-roots activists whose mobilization against destructive and short-sighted development projects is recognized around the world. Their role in the Chipko movement against deforestation in India is the most vivid example. Women were also at the forefront of passive resistance to the Narmada Dam, believed by many to threaten cultural and economic survival and create long-term water management problems in India. In 1998, women took the lead in massive demonstrations which shut down work on the dam, if only temporarily. "Protests against the damming of the Narmada began more than 10 years ago, and thousands of women have said they are prepared to drown rather than move", it is reported.[18]

A women's resource centre in Zimbabwe organized a local-level community workshop to consider strategies

Women cope with environmental degradation

Some of women's coping strategies are:

- **Women put more time, effort and energy into work.**
- **Women start specific activities aimed at making available more natural resources and increasing the supply. Examples of these include . . . tree planting and reforestation and forest conservation activities. Women establish kitchen gardens near their houses, install water points, and regenerate degraded land . . .**
- **Women economize on the use of resources. A common strategy is, for example, shifting to other food products which need less cooking time (often these products are less nutritious), limiting the number of cooked meals or the boiling of water (with all its health consequences). Another possibility is the use of energy/resources-saving devices . . .**
- **Another issue which has been taken up by groups of women is recycling. In situations of water scarcity, for example, they manage to recycle and reuse water for several purposes.**
- **Women also look into using alternatives such as solar and wind energy for cooking, switching to alternative crops, or changing planting patterns or technology.**
- **Women organize to prevent pollution or they clean up waste sites.**

Source: Irene Dankelman, Gender and environment: lessons to learn. Observer paper prepared for the expert group meeting organized by the Division for the Advancement of Women, Ankara, Turkey, November 2001 (*www.un.org/womenwatch/daw/csw/env_manage/index.html*).

for mitigating drought conditions. This effort highlighted the significance of women's insecure land rights. In short, women lacking ownership or secure tenure were much less likely to participate in aforestation projects and other activities useful for coping with drought. The link between women's right to land, disaster mitigation and sustainability was evident to the people without water: "Women should enjoy the same rights to arable land as men, the same access to extension services, and agricultural credit, and equal control of agricultural produce and income. This will increase women's ability to plan for and maintain greater food self-sufficiency at [the] household level, with cumulative effects at [the] local level. While nothing can prevent drought, such reforms would enable women to plan for food production and make provision for a possible drought in the following season."[19]

Women assess disaster vulnerabilities and capacities locally

"All mitigation is local."[20] Although community assessments are generally conducted by outside researchers or relief agencies, it is local people who have specific knowledge about the particular vulnerabilities of individuals, social groups and institutions and about particular coping strategies traditionally adopted by local people. Women's participation in such assessments is critical: "Women's indigenous knowledge and practice of environmental management increases the coping capacity of communities in environmentally fragile and hazardous areas and thus contributes to their survival."[21] The following examples illustrate this point.

Grass-roots women know local people's needs and strengths, for example, in the Caribbean basin. Four women's community-based organizations (CBOs) in the Dominican Republic and St. Lucia are winding up the first phase of a two-year project to map risk in their communities, including the daily disasters that characterize low-income women's lives, and the hurricanes, landslides and fires, to which they are exposed. With training in basic research methods, the community women conducted interviews, recorded life histories, developed photo essays and drew risk maps to assess their own strengths and the dangers they face. This information is being compiled into Community Vulnerability Profiles to be used by community leaders and shared with local emergency managers. A set of practical *Guidelines for Working with Women to Assess Disaster Vulnerability* has been produced to help guide women's community groups, as well as emergency agencies, in assessments of this kind.[22]

Women learners and educators increase capacity to cope with natural disasters. Working from an adult education model, two women researchers and activists produced a set of gender-sensitive participatory learning activities for disaster mitigation for use in southern Africa. Assessing women's livelihood in disaster contexts is a core component of the training. Workshop participants are provided with information about how gender relates to disaster risk, and helped to recognize gender dynamics within the small work groups as they are being trained in risk management.[23]

Women enhance community health by taking the initiative in many contexts to identify and address community health problems arising from environmental pollution and contamination. This was evident in Malabon in the Philippines, for example, following extreme flooding. The local club of the Soroptimists International organized two well-attended workshops with the participation of all stakeholders. In the first workshop, Soroptimist women and others worked with participants to address the structural causes of flooding; in the second, they outlined a number of possible short- and long-term responses.[24]

Women increase awareness about, and prepare for disasters

Risk assessments are the basis for local emergency planning and preparedness projects. Women's participation in these efforts is critical as their knowledge, social position and roles will ensure a more comprehensive approach to preparing for disasters.

Women have environmental science expertise and managerial skills in larger proportions than ever before, although their representation in emergency management and in environmental science professions and organizations varies widely between organizations and across regions. An emergency manager from the western United States, for example, noted the need for culturally appropriate and inclusive preparedness materials in her region, writing, "We can make a difference in people's lives when we empower women of other cultures with the knowledge to mitigate, respond and recover from a disaster."[25] Gender balance in risk reduction projects and in emergency management is a necessary first step.[26]

Women's experience as effective community educators, especially those involved in family education and the school system, enhances their capacity for awareness raising and disaster preparation. In the Caribbean, to take one example, it was observed that older women's views about risk are credible because children have great respect for what their "grandmother always said."[27]

In Hawaii, women involved in El Niño task forces in the late 1990s developed public education programmes targeting local villages to promote water conservation and public health measures. Campaigning to treat suspect groundwater before drinking, they helped reduce the incidence of reported diarrheal disease significantly. By targeting women with forecasts and

Women at risk in the Asia Pacific region

We recognize that risks and impacts of environmental crises and natural disasters are experienced by women and men differently and are mediated by their differential access to and control over resources . . . We also recognize that development policies and practices in the Asia Pacific region often ignore the need for preserving the integrity of the environment where people and communities can sustain and improve upon their livelihoods. This has contributed to unprecedented environmental vulnerability leading to more frequent recurrence of natural events that are more extensive in impacts . . . We strongly believe that a human rights based approach is particularly important for a gendered analysis of environmental crises and natural disaster situations. We urge member States to recognize the impact of development policies and projects on environmental crises and natural disasters that manifest themselves in an aggravated and differentiated manner for women, causing the loss of their income, workspace and livelihoods; and, often, leading to destitution and denial of women's human rights.

Source: Nilufar Matin, Asia Pacific Forum on Women, Law and Development, "Women's human rights considerations in environmental management and mitigation of natural disasters". Presented to the United Nations Commission on the Status of Women, 6 March 2002.

warning information, the effects of this hazard were significantly reduced.[28]

Eking out a living on the fringes of great cities, poor women have little authority but much responsibility for meeting urgent family needs, including waste disposal and water conservation. The World Health Organization (WHO) collaborated with local tenants' committees in urban slum areas around Alexandria, Egypt, to identify young women for training. Environmental scientists from area universities taught them for six weeks about sound environmental practices, including wastewater management. Known as "environmental promoters", the young women earned new respect from local, male-dominated municipal authorities, and built on their environmental knowledge to lobby municipal authorities for improvements in the informal settlement, such as paving roads subject to flooding.[29]

When the town of La Masica, Honduras, reported no deaths after Hurricane Mitch, women's extensive involvement in community education programmes undertaken by the local Central American disaster reduction agency six months earlier was praised. "Gender lectures were given and, consequently, the community decided that men and women should participate equally in all hazard management activities. When Mitch struck, the municipality was prepared and vacated the area promptly, thus avoiding deaths . . . [Women] also took over from men who had abandoned the task of continuous monitoring of the early warning system." Some 20 years earlier, a similar pattern developed in Honduras after Hurricane Fifi when women stepped in to carry on soil conservation measures abandoned by men.[30]

Women volunteer more in preparedness projects before disasters occur rather than after disasters happen, when men may be freer to leave the household and offer assistance to strangers.[31] For example, women are highly active in neighbourhood-based emergency preparedness programmes in Canada and the United States, especially among middle-class women with greater control over their personal time and other resources.[32]

Women respond to urgent needs

Much of women's work in disasters is socially invisible, undervalued and unacknowledged. However, women's responses to emergencies through their local organizations, such as labour unions, cultural associations, anti-violence networks and community development groups, as well as through accessing international relief resources, make a real difference in realizing speedy and effective relief in a disaster.

Following earthquakes in India and Turkey, women's groups were very proactive in assessing relief needs and helping women receive equitable shares of supplies.[33] The Foundation for the Support of Women's Work (FSSW), a Turkish non-governmental organization (NGO), built on the resources of its many women and children centres to respond to earthquake survivors. These centres, which support local women's savings groups, childcare, income-generation projects and other activities, proved invaluable after the catastrophic earthquake of 1999. Significantly, women's earthquake response efforts also inspired tenant women to organize housing cooperatives. The women and development group Swayam Shikshan Prayog (SSP) helped construct housing and community centres in Gujarat.[34]

In the Dominican Republic, for example, Ce Mujer, a non-governmental organization, was very involved securing outside assistance for villagers hit by Hurricane George. Observers

reported that "community members, especially males, changed their views of women . . . Women created better relationships with local authorities and this experience proved women's capacity for leadership."[35] In 1999, women's centres affiliated with the Nicaraguan Women's Network against Violence responded immediately to Hurricane Mitch by distributing basic supplies. Working in cooperation with the local council and mayor, the women's centres took responsibility for house construction "because of the previous experience in this area and their networks in the affected communities." Women from the United Kingdom participated in a women's reconstruction brigade to Nicaragua to assist the centres.[36]

Recognizing women's urgent need for income following the Gujarat earthquake, the Self-Employed Women's Association (SEWA) not only helped direct and deliver emergency supplies such as food, clothing and water but also provided craft kits to women in tents.[37] Working with the Disaster Mitigation Institute, SEWA representatives also visited rural women to assess the indirect economic impacts of the drought and the earthquake, ensuring that the livelihoods of these women were clearly addressed in government rehabilitation programmes. In one region of Gujarat, a team of five women operating independently of municipal authorities managed the local water system that brought water to four villages in the arid lands of Surendranagar. A reporter described their efforts in a crisis: "When the quake damaged the pipe connecting the overhead water storage tank, of 4.5 lakh litres capacity, it was these women, along with SEWA members (mostly salt workers), who mustered the courage of climbing atop the structure and repaired the damage. The mason simply fled and refused to do anything as there were frequent tremors."[38]

Local women's organizations can be invaluable partners for outside organizations responding to natural disasters. The International Labour Organization, for instance, was able to capitalize on its strong relationship with SEWA in rehabilitation efforts for craft workers and other earthquake-affected women. The United Nations Development Programme (UNDP) partnered with the Government of Norway and women's associations in 180 impacted villages in the region to develop livelihood rehabilitation projects targeting women craft workers.[39]

National and international women's organizations, including business and professional women's associations, microcredit and savings groups and women's banks, faith-based women's groups, and women organized around political and feminist goals frequently help women in disaster situations.[40] National organizations may work through local membership chapters. In the wake of Miami's Hurricane Andrew, for example, the National Association of Women Business Owners started a new relief fund to raise money for local members and sent new office equipment and other needed supplies.[41]

A World Food Programme staffer in Nicaragua during Hurricane Mitch observed the multifaceted contributions of individual women during and after disasters, such as the following: "After the storm subsided, international aid began entering the area near her village. She saw that the village leader, a man who lost his farm, was more concerned about his own needs than those of other village members . . . So she travelled to the mayor's office, where she had never been before. She visited the Peace Corps volunteer in town, whom she did not know. Through her dedication, persistence, and patience, she had seven houses built and legally put in the wife/mother's name. She insisted that latrines be built for all families. She rallied for 10,000 trees to be planted on the deforested hills that surrounded her village. She learned about water diversion tactics, and found an engineer to teach her village to build gavion-walled channels."[42]

Communication between disaster relief agencies and stricken communities was impossible after Hurricane Mitch. In Tegucigalpa, Honduras, the coordinator of a sustainable development project used new information technologies such as LISTSERVs and e-mail to match needy communities and outside agencies. Eventually, a core group of 100 volunteers was formed to analyse and circulate information about pressing needs and available resources. Recognizing the lack of Internet access in poor areas, the group then obtained outside funding to provide computers and training to nearly 800 people, "convinced these skills will reduce the vulnerability of Hondurans to future disasters."[43]

Women's informal leadership is a vital part of political life in most communities, as it certainly was when the city of Manzanillo, in the Mexican state of Colima, suffered the effects of a 1995 earthquake. An existing neighbourhood organization, led mainly by women, was soon reborn as the Committee of Reconstruction. "They assessed the damage to each house and developed a plan to restore the district. They organized a neighbourhood watch to prevent theft, replaced the street signs themselves, and worked to get the water supply returned . . . The women in the neighbourhood association have worked hard to solve the problems that emerged after the earthquake. They affirm that their struggle is not political but rather for 'the families' ' well-being . . . According to the women interviewed, women organize more effectively than men to demand help. Men, in general, decline to participate, either because they are convinced the Government has to serve them after paying their taxes or because they don't want to be seen with a group of women."[44]

Increasingly, women also respond to natural disasters in their role as emergency managers in public and private

agencies. While gender bias continues to be a concern in most disaster organizations and NGOs working on disaster issues, opportunities for women in male-dominated aspects of formal emergency management work are expanding. In a 1990 Caribbean study, just two of 22 countries had female heads of national emergency management offices.[45] Increasing these proportions is important, but no more so than bringing grassroots women into all aspects of disaster reduction and response.[46] Focusing on women's skills, knowledge and abilities in key emergency management areas, such as health, can facilitate women's participation.

How disaster resilience is strengthened by gender equality

Capitalizing on the "window of opportunity" during reconstruction

Disasters are complex social processes. Their effects may be diffused, and difficult to anticipate or measure. Economic gains and losses are common. Solidarity can increase or decrease. Conflicts arising in the wake of disasters quite frequently galvanize people and lead to calls for political change, for example, in campaigns against governmental inefficiencies and inequalities. Once the short-lived period of social unity ("therapeutic community" of disaster) has ended, however, social inequalities based on class, caste, race or ethnicity, age, physical abilities and gender can quickly reappear.

As destructive as they are, natural disasters clearly offer many opportunities for social change. Too often, however, opportunities to address gender inequalities are overlooked in the rush to return to "normal" life, including "normal" gender norms, values and stereotypes. Women's work in the informal sector, for example, is rarely factored into post-disaster economic recovery measures, just as the specific emotional needs of boys and men are neglected in post-disaster mental health programmes.

At the same time, though, there is some evidence that old rules can lose force—if only temporarily—when people respond to the kinds of emergency conditions produced by armed conflict and natural disasters. Following Hurricane Mitch in Central America, for instance, it was observed that more men did more cooking and took more responsibility for childcare.[47] During a drought period in Sri Lanka, as people became more dependent upon government-supplied water, men took on more responsibility for providing drinking water, ferrying home five-gallon plastic containers on push bicycles or tractors.[48] Women protesting against gender bias in relief and recovery programmes in Miami laid the groundwork for ensuring that in future disasters gender perspectives would not be ignored.

Addressing social inequalities directly after disasters is frequently part of women's reconstruction work. When violence against women increased following Hurricane Mitch, Puntos de Encuentro, a non-governmental organization, integrated anti-violence education directly into post-disaster recovery work. Working through various media outlets, the organization developed a community education campaign to transmit this message: "Violence against women is one disaster that men can prevent." One observer recalled, "It is clear from the looks on participants' faces that this workshop is not only enabling them to work through the emotional difficulty of post-traumatic stress but also to consider the need for transforming gender roles in their community." Like other NGOs and women's groups, Puntos de Encuentro was highly involved in hurricane relief and recovery but went much further. Its proactive work around violence against women promises to help limit violence against women in future disasters and is a model for taking advantage of the "window of opportunity" to challenge structural inequalities that undermine community solidarity in the face of disaster.[49]

The initiatives taken by Pattan, a non-governmental organization, in response to flooding in Pakistan in the early 1990s is another example where social inequalities were addressed directly in the aftermath of a disaster. Pattan workers ensured that women as well as men were represented on village committees that advised on flood relief projects. Observing women's lack of security of housing, the NGO deeded new homes constructed after the flood jointly in the names of women and men and assisted illiterate women in accounting procedures for making loan repayments, in support of their new role as co-owners. A researcher who studied Pattan's work concluded: "It was the beginning of the process of empowerment in women's lives. Now they are taking collective responsibility in many other projects and learning how to perform new tasks well. They are gaining in confidence and self-esteem, which is an important step toward women's ability to take control of their own lives, decreasing their vulnerability in times of crisis."[50]

Women increasingly take advantage of solidarity built in the midst of a calamity, and organize after disasters. Over 40 ethnic, cultural, social, religious and economic women's organizations in Greater Miami came together as a coalition called Women Will Rebuild in the wake of the 1992 hurricane. They met regularly throughout the relief and recovery period to reduce gender bias in measures taken. These organizations worked with local media to highlight women's and children's needs and lobbied for distributing donated and government relief funds accordingly. Their goals of redirecting just 10 per cent of available funds to women and children

and increasing the proportion of women on the grant-making committee of the male-dominated relief group We Will Rebuild were not met. However, Women Will Rebuild did eventually influence decisions to use more relief funds for youth services and brought more women into We Will Rebuild. Working in coalition after a crisis helped Miami's very divided women's community unite around shared goals, and raised hopes that the needs and priorities of women and children will get due attention when the next hurricane hits Miami.[51]

Nine years after Armenia's destructive 1988 Spitak earthquake, a small group of women scientists organized the NGO Women for Development to help reduce social vulnerability to future earthquakes. One of their important projects was the initiation of training for primary- and middle-school teachers and pupils in seismic protection steps ("don't be scared, be prepared!"). The group also helped local and regional governments in planning coordinated earthquake response, and designed mass media campaigns highlighting the role of women in disaster preparedness. The group's efforts conveyed "a new positive type of woman, who is not only silently carrying the heavy results of the disasters but is also ready to provide her knowledge and ability for disaster mitigation."[52]

Reconstruction efforts can also facilitate the breaking down of barriers that restrict women's full participation in mitigation, preparedness, response and recovery activities, and help challenge social divisions generally. For instance, when the German Red Cross and the Bangladesh Red Crescent committed to responding to the 1991 cyclone in gender-sensitive ways, the entire community benefited. Gender-balanced village disaster preparedness committees were formed to provide training to women. With men often out of town or engaged in fieldwork, women were trained how to save food and belongings, and what items to take to shelters. The relief committee also sought to increase awareness among women and men about the importance of gender equality, and afforded women increased opportunities for exchanging ideas with other women.[53]

In the wake of natural disasters, opportunities for non-traditional skills building and employment often increase, though existing gender-specific divisions of labour defines the broad contours of both women's and men's emergency response work. In India, women received skills training in safe housing construction techniques after the Latur and Gujarat earthquakes, working through community-based women's groups, mitigation agencies and government recovery programmes. They also helped design new homes that better served their work-related as well as their residential needs. Some accounts from the United States suggest that after a flood or hurricane, women may manage home construction, organize work crews, learn and practise new home repair skills and negotiate with insurance agents to rebuild their homes. Others work in distribution facilities, landscaping and construction during the recovery period.[54]

When half the population was displaced due to widespread volcanic eruption, women in Montserrat started a new group called Women on the Move, which assisted women displaced from their homes and workplaces by offering skills training in both traditional areas and non-traditional fields such as information technologies. Through their efforts, more work became available for women on male-dominated construction sites, and women gained self-confidence and economic independence. The group's consensual decision-making process reportedly helped unite women traumatized by the unfolding disaster that deprived them of their way of life. Not only did Women on the Move advance women's long-term recovery, it also fostered faith in women's "own ability to shape and direct their lives" and encouraged women to "enter into new relationships with their men and the society in which they live."[55]

Aftermaths of disasters have encouraged new political campaigns. When building facades were destroyed by Mexico City's 1985 earthquake, the working conditions of costureras (garment workers) were vividly exposed. Two days after the earthquake, women from 42 factories created the September 19 Garment Workers Union, which became the first independent union to be recognized by the Mexican Government in over a decade. One observer recalled the scene: "In the days following, women came together to deal with the immediate problems of food, water, shelter, health care; they were joined by family members who had lost a wife, mother, sister or lover. The response of government officials and the "patron", the factory owner, fueled their grief into rage and created a popular movement that has rallied the support of women's organizations throughout Mexico. While the costureras and family members begged government officials to move in heavy equipment and personnel to search for survivors and recover the bodies, the owners had hired people to remove equipment and raw materials while women were still buried in the rubble."[56]

Women can gain greater influence on government and emergency response agencies when they are actively engaged throughout the disaster process. Following the 1993 earthquake in northern India (Latur), a network of women's groups and rural associations organized by Swayam Shikshan Prayog (SSP) became "community consultants", interfacing between impacted communities and government officials to promote disaster relief that advanced long-term community development. Most significantly, they took on the role of monitoring the housing reconstruction process, training local women as observers and technical consultants to

increase accountability and help ensure equitable redevelopment.

In addition to emergency relief, Turkish women working through the Foundation for the Support of Women's Work (FSWW) mobilized in small groups to conduct post-disaster housing surveys to document shortages and tenant needs. They visited local officials to share this information and make known women's housing and related needs. They achieved increased levels of public financing for childcare, more opportunities for women in construction work, and regular consultations between affected women and other stakeholders during the recovery process.

International solidarity between women can also increase in the wake of a major disaster. Following the 1999 Marmara earthquake, personal visits between disaster survivors in Turkey and in India allowed women to exchange valuable lessons about gender-sensitive disaster response and reconstruction. With support from international funders, representatives from the Swayam Shikshan Prayog (SSP) in India traveled to Turkey to share their experiences with the Foundation for the Support of Women's Work (FSWW) and other women's groups there. Back in India, over 100 women leaders involved in the SSP response to the Latur earthquake traveled to Gujarat following the 2001 earthquake, where they demonstrated the technical and political skills they had gained as reconstruction experts.

Promotion of gender-sensitive and people-centred reconstruction was enhanced when these and other women's groups worked across national boundaries. In Turkey, the Foundation for the Support of Women's Work (FSWW) was a catalyst for increased participation of grass-roots women in decision-making, actively promoting local women's interests and participation in the reconstruction process.[57] Their efforts also helped nudge post-disaster activities from emergency assistance to long-term development goals.[58] The intervention of women also resulted in the birth of Disaster Watch, a new initiative to monitor disaster response for gender bias and to use the findings to increase government accountability to gender equality throughout disaster response and recovery activity.[59]

Women can be powerful advocates for safety when they are viewed as experts and skilled communicators. This was the case in India when the Government of Norway and the United Nations Development Programme (UNDP) proposed to fund a radio programme produced and broadcast by women's groups to "ensure access to information at all levels, which [is] essential to the community-led and controlled process of recovery and reconstruction being envisioned."[60] Where women's radio is well established (as it is in Brazil, for example), it can be a critical link to alleviate women and a means for women's networking around sustainable development issues and disaster reduction. When women control the medium and the message, early warning systems are much more likely to reach all people.

Linking women's empowerment, sustainable development and disaster reduction

"Pursue gender equality and gender-sensitive environmental management and disaster reduction, response and recovery as an integral part of sustainable development." This recommendation, included in the agreed conclusions of the United Nations Commission on the Status of Women (CSW) of its 46th session in 2002, was adopted by the Economic and Social Council (ECOSOC) as a resolution and encouraged all social actors to make the connection.[61]

Making connections

Many opportunities for linking disaster reduction, gender equality and sustainable development are missed. While the Beijing Platform for Action, for instance, reiterated that women "have an essential role to play in the development of sustainable and ecologically sound consumption and production patterns and approaches of natural resources management,"[62] the link to disaster reduction was not articulated. Much the same can be said of the many strong declarations, conventions and agreements resulting from global conferences on disaster reduction and on environmental, economic and social development themes, which have not, or have insufficiently, articulated the link to gender equality.

At the same time, the basis for making the connections is there. Similar to

other global conferences on development, the Fourth World Conference on Women acknowledged: "sustainable development policies that do not involve women and men alike will not succeed in the long run. [These conferences] have called for the effective participation of women in the generation of knowledge and environmental education in decision-making and management at all levels. Women's experiences and contributions to an ecologically sound environment must therefore be central to the agenda for the twenty-first century. Sustainable development will be an elusive goal unless women's contribution to environmental management is recognized and supported."[63]

The World Summit on Sustainable Development, held in Johannesburg, South Africa, in 2002, reiterated a commitment to ensuring the integration of women's empowerment, emancipation and gender equality into all activities encompassed within Agenda 21, the Millennium Development Goals and the Plan of Implementation of the Summit. More specifically, the Plan also makes the connection between promotion of gender equality and a number of priority areas, such as poverty eradication, protection and management of the natural resource base, and health for sustainable development.[64] In May 2003, when elaborating its multi-year programme of work to implement the Summit Plan over the next 12 years, the United Nations Commission on Sustainable Development decided that gender equality would be one of the cross-cutting issues to be addressed in relation to each of the thematic clusters the Commission would consider.[65]

Recognizing where and how the concerns of gender equality, sustainable development and disaster reduction intersect will strengthen progress in each of them and also help transform visionary goals into practical and coordinated steps toward safety, sustainability, gender equality and social equity. Some of the connections that have to be made are addressed below.

Gender equality, sustainability and disaster reduction are intersecting goals. Action to pursue goals and objectives specific to any one of them while also addressing the others in an integrated manner will build stronger and more comprehensive advocacy and social change networks. When organizations active in any of these three areas work together, they can more effectively advance the agenda of the three movements. At present, these areas remain compartmentalized and important connections are missed: the environmental justice movements neglect gender perspectives and women's disaster experiences; male-dominated disaster organizations pay little attention to gender equality and sustainability; gender equality has not yet become a central aspect in the work of environmental groups and organizations, though women are increasingly involved; and women's movements have failed to analyse the social construction of women's vulnerability in natural disasters.

Another connection can be made around similar change strategies pursued in all three areas. Sustainable development, disaster reduction and gender equality are all promoted through (related but discrete) networks of NGOs and, at the international level, through negotiated conventions, treaties, and global agreements and declarations. Though disaster reduction has not yet galvanized an international social movement similar to the environmental movement or women's mobilization, it has a large and growing constituency cutting across regions and nations. Seeing risk broadly and through a gender lens makes evident the need for gender-responsive and community-based strategies for change.

A third connection can be made around the root causes of natural disasters and unsustainable development, and their effects on gender equality. Deteriorating environments and reduction in natural resources lead to displacement of communities, especially women, from income-generating activities, additional women's unremunerated work and reduced capacity to

Unleashing the potential of women

In Bangladesh, like in so many other countries, women are not helpless victims as so often portrayed. Since they have to survive in a hostile environment throughout their lives, they have developed particular strengths, determination and courage. As well, when they are allowed to do so, they have a major role to play in the planning and implementation of disaster relief and rehabilitation. Their contribution to the household income, for example, frequently keeps the whole family alive . . . There is no debate nowadays that in any disaster, women's marginal position in society makes them more vulnerable to natural disasters. Yet they are the key to addressing disaster preparedness and rehabilitation. Correcting the inequitable distribution of resources and power between men and women is the only way to achieve sustainable development and reduce the effects of natural disasters. Unleashing the latent potential of women shall become an integral part of disaster preparedness and mitigation.

Source: Royeka Kabir, "Bangladesh: surviving the cyclone is not enough", *IDNDR Stop Disasters*, vol. 24 (1995), p. 6.

cope with natural disasters. Climate variations that affect subsistence agriculture particularly threaten women farmers' livelihoods and hence undermine their capacity to prepare for, respond to and recover from natural disasters.

Gender-responsive disaster reduction: the way forward

Gender is a significant factor in the construction of social vulnerability in relation to risk of natural disasters, the differential impact of disasters and potential for developing adequate responses to hazards and disasters.[8] Gender-based differences and inequalities put some women and girls in particularly vulnerable situations. On the other hand, women should not only be seen as victims. Women are agents of change, actors and contributors at all levels. Full understanding of the roles, contributions and knowledge of women and men in relation to the natural resource base is an essential starting point in working with natural disasters, particularly in terms of risk assessment and management. Emergency response and management must explicitly target women as well as men in all areas of support, based on the recognition that women's involvement is essential to adequate recovery and potential for sustainable development and reduction of natural disasters.

The United Nations Commission on the Status of Women, at its 47th session in 2002, put forward for the first time a comprehensive set of global policy recommendations, contained in the Annex, to enhance women's empowerment and promote gender equality in situations of natural disasters. Implementation of these actions, by all concerned stakeholders, is critical in accelerating achievement of the mutually reinforcing goals of gender equality, sustainable development and disaster reduction.

In implementing these actions, significant impacts could be achieved through the following steps:

- Policies, strategies and methodologies for disaster reduction should be people-centred and be based on consultative and participatory processes, that include all stakeholders, both women and men. The particular constraints to consultation and participation in areas of great poverty should be identified and addressed, including the gender-specific constraints.
- The value-added of including social dimensions, including gender perspectives, in work on natural disasters needs to be made explicit. This requires moving beyond a focus on women as victims to an approach that recognizes the contributions and potential of women as well as men.
- The research, experiences and good practices that exist on gender and environmental management, risk assessment and management and emergency management and response should be more systematically compiled in a form that is useful to policy makers and administrators. Key areas where more research is needed should be identified and resources made available for initiating research projects based on participatory processes where both local women and men can be involved in identifying vulnerabilities and suggesting remedies.
- One critical area of research should be developing a better understanding of the linkages between gender, environmental management and disaster reduction, and the policy implications of this knowledge.
- Generic guidelines need to be developed on the types of gender-specific questions that should be raised in relation to environmental management, risk assessment and management and emergency response and management. These guidelines should then be adapted in each specific disaster context to ensure that adequate attention is given to the needs and priorities of both women and men and that women as well as men are consulted and given opportunities for participation.
- Collection of sex-disaggregated data should be obligatory in all areas of work on natural disasters. Where such statistics are not available, this should be clearly pointed out as an important gap to be rectified.

Annex

Agreed Conclusions on Environmental Management and the Mitigation of Natural Disasters, proposed by the United Nations Commission on the Status of Women, forty-sixth session, 4-15 and 25 March 2002, and adopted as ECOSOC resolution 2002/5

1. The Commission on the Status of Women recalls that in the Beijing Declaration and Platform for Action, it was recognized that environmental degradation and disasters affect all human lives and often have a more direct impact on women and that it was recommended that the role of women and the environment be further investigated. The twenty-third special session of the General Assembly (2000) identified natural disasters as a current challenge affecting the full implementation of the Platform for Action and emphasized the need to incorporate a gender perspective in the development and implementation of disaster prevention, mitigation and recovery strategies. The Commission also recalls the resolve in the United Nations Millennium Declaration (General Assembly resolution 55/2) to intensify cooperation to reduce the number and effects of natural and man-made disasters, as well as General Assembly resolution 46/182, which contained the guiding principles on humanitarian assistance.

2. Deeply convinced that economic development, social development and environmental protection are interde-

pendent and mutually reinforcing components of sustainable development, which is the framework for our efforts to achieve a higher quality of life for all people.

3. The Commission reiterates the strategic objectives and actions adopted by the Fourth World Conference on Women, held in Beijing in 1995, and in the outcome document of the twenty-third special session of the General Assembly, held in New York in 2000, entitled "Women 2000: gender equality, development and peace for the twenty-first century".

4. The Commission recognizes that women play a vital role in disaster reduction (prevention, mitigation and preparedness), response and recovery and in natural resources management, that disaster situations aggravate vulnerable conditions and that some women face particular vulnerabilities in this context.

5. The Commission also recognizes that women's strengths in dealing with disasters and supporting their families and communities should be built upon following disasters to rebuild and restore their communities and mitigate against future disasters.

6. The Commission recognizes the need to enhance women's capacities and institutional mechanisms to respond to disasters in order to enhance gender equality and the empowerment of women.

7. The Commission urges Governments and, as appropriate, also urges the relevant funds and programmes, organizations and the specialized agencies of the United Nations system, the international financial institutions, civil society, including the private sector and NGOs, and other stakeholders, to take the following actions to accelerate implementation of these strategic objectives to address the needs of all women:

(a) Pursue gender equality and gender-sensitive environmental management and disaster reduction, response and recovery as an integral part of sustainable development;

(b) Take measures to integrate a gender perspective in the design and implementation of, among other things, environmentally sound and sustainable resource and disaster management mechanisms and establish mechanisms to review such efforts;

(c) Ensure the full participation of women in sustainable development decision-making and disaster reduction management at all levels;

(d) Ensure the full enjoyment by women and girls of all human rights—civil, cultural, economic, political and social, including the right to development-including in disaster reduction, response and recovery; in this context, special attention should be given to the prevention and prosecution of gender-based violence;

(e) Mainstream a gender perspective into ongoing research by, inter alia, the academic sector on the impact of climate change, natural hazards, disasters and related environmental vulnerability, including their root causes, and encourage the application of the results of this research in policies and programmes;

(f) Collect demographic and socio-economic data and information disaggregated by sex and age, develop national gender-sensitive indicators and analyse gender differences with regard to environmental management, disaster occurrence and associated losses and risks and vulnerability reduction;

(g) Develop, review and implement, as appropriate, with the involvement and participation of women's groups, gender sensitive laws, policies and programmes, including on land-use and urbanization planning, natural resource and environmental management and integrated water resources management, to provide opportunities to prevent and mitigate damage;

(h) Encourage, as appropriate, the development and implementation of national building standards that take into account natural hazards so that women, men and their families are not exposed to high risk from disasters;

(i) Include gender analysis and methods of mapping hazards and vulnerabilities at the design stage of all relevant development programmes and projects in order to improve the effectiveness of disaster risk management, involving women and men equally;

(j) Ensure women's equal access to information and formal and non-formal education on disaster reduction, including through gender-sensitive early warning systems, and empower women to take related action in a timely and appropriate manner;

(k) Promote income-generating activities and employment opportunities, including through the provision of microcredit and other financial instruments, ensure equal access to resources, in particular land and property ownership, including housing, and take measures to empower women as producers and consumers, in order to enhance the capacity of women to respond to disasters;

(l) Design and implement gender-sensitive economic relief and recovery projects and ensure equal economic opportunities for women, including both in the formal and non-formal sectors, taking into account the loss of land and property, including housing and other productive and personal assets;

(m) Make women full and equal partners in the development of safer communities and in determining national or local priorities for disaster reduction and incorporate local and indigenous knowledge, skills and capacities into environmental management and disaster reduction;

(n) Support capacity-building at all levels aimed at disaster reduction, based on knowledge about women's and men's needs and opportunities;

(o) Introduce formal and non-formal education and training programmes at all levels, including in the areas of science, technology and economics, with an integrated and gender-sensitive approach to environmentally sound and sustainable resource management and disaster reduction, response and recovery in order to change behaviour and attitudes in rural and urban areas;

(p) Ensure the implementation of their commitments by all Governments made in Agenda 21 and the Beijing Platform for Action and the outcome document of the twenty-third special session of the General Assembly, including those in the areas of financial and technical assistance and the transfer of environmentally sound technologies to the developing countries, and ensure that a gender perspective is mainstreamed into all such assistance and transfers;

(q) Document good practice and lessons-learned, particularly from effective community-based strategies for disaster reduction, response and recovery, which actively involve women as well as men, and widely disseminate this information to all stakeholders;

(r) Improve and develop physical and mental health programmes, services and social support networks for women who suffer from the effects of natural disasters, including trauma;

(s) Strengthen the capacities of ministries, emergency authorities, practitioners and communities to apply a gender-sensitive approach to environmental management and disaster reduction and the involvement of women professionals and field workers;

(t) Forge constructive partnerships between Governments, international organizations and civil society, including the private sector and NGOs, and other stakeholders in integrated and gender-sensitive, sustainable development initiatives to reduce environmental risks;

(u) Encourage civil society, including NGOs, to mainstream a gender perspective in the promotion of sustainable development activities, including in disaster reduction;

(v) Ensure coordination in the United Nations system, including the full and active participation of funds, programmes and specialized agencies to mainstream a gender perspective in sustainable development, including, inter alia, environmental management and disaster reduction activities.

8. The Commission on the Status of Women calls for the integration of a gender perspective in the implementation of all policies and treaties related to sustainable development and in the review of the implementation of the Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation and its Plan of Action, scheduled for 2004.

9. The Commission on the Status of Women welcomes the International Strategy for Disaster Reduction efforts to mainstream a gender perspective in the mitigation of disasters.

10. The Commission on the Status of Women welcomes the policy statement of the Inter-agency Standing Committee for the integration of a gender perspective in humanitarian affairs of 31 May 1999.

11. The Commission on the Status of Women welcomes the convening of the International Conference on Financing for Development[4] and takes note of the recognition contained in the draft Monterrey Consensus of the particular needs of women and the importance of gender equality and the empowerment of women, as well as the recognition of the impact of disasters.

12. The Commission on the Status of Women also welcomes the convening of the World Summit on Sustainable Development, to be held in Johannesburg, stresses the importance of gender mainstreaming throughout the process and urges gender balance in the composition of delegations as well as the involvement and full participation of women in the preparations, work and outcome of the World Summit, thus renewing the commitment to gender equality objectives at the international level. The Commission on the Status of Women further reiterates that all States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

Suggested readings

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Related Web Sites

GDN: Gender and Disaster Network web site including downloadable papers and conference proceedings, bibliography and contact information for members (*www.anglia.ac.uk/geography/gdn*)

CRID: The Regional Disaster Information Centre maintains an international collection of Spanish- and English-language documents, with a growing collection of gender and disaster writing (*www.crid.or.cr*)

DAW: Web site of the United Nations Division for the Advancement of Women (*www.un.org/womenwatch/daw*)

Endnotes

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[8] Andrew Maskrey, *Disaster Mitigation: A Community Based Approach*. (Oxford, Oxfam, 1989), p. 3.

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[13] See SEWA and DMI web sites for more information. UNDP's work is reported in press release No. 209, 21 April 2001(*www.undp.org.in/news/press/press209.htm*).

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[17] Interview with K. Pushpanath, Oxfam Regional Representative for Malawi and Zambia, 1988-1993, *Focus on Gender*, vol. 12, No. 1 (1994).

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[28] See posting by Cheryl Anderson cited in Elaine Enarson, op. cit., report from the online conference conducted by the United Nations Division for the Advancement of Women (November 2001), p. 12.

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[35] Described by Lourdes Meyreles, Facultad Latinoamericana de Ciencias Sociales (FLACSO) in the Dominican Republic, at the 2000 Miami conference, Reaching Women and Children in Disasters.

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[48] See posting by Madhavi Ariyabandu, in Elaine Enarson, op. cit., report from the online conference conducted by the United Nations Division for the Advancement of Women (November 2001), p. 14. Available through the DAW (*www.un.org/womenwatch/daw/csw/env_manage/documents.html*). There is a great need for comparative and longitudinal research to identify factors supporting sustained change toward more egalitarian gender relations in the wake of disasters.

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350 Brazilian women's radio programmes is described in the WEDO Primer: Women and Sustainable Development, Local Agenda, May 2001.

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[66] The conclusions and recommendations are adapted from Carolyn Hannan, Director, United Nations Division for the Advancement of Women, statement at a round-table panel and discussion organized by the Division for the Advancement of Women and the NGO Committee on the Status of Women, United Nations Headquarters, 17 January 2002 (*www.un.org/womenwatch/daw/documents/Natdisas*).

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